CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 28.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company**, Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	28.03.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.52	10.21	9 Kn (min)
2	Marshal flow, mm	3.86	3.95	2 – 4
3	Percent air voids in Mineral Aggregate	13.97	14.53	13 – 15
4	Voids in Compacted Mix	3.48	4.62	3 – 6
5	Percent Voids filled with Bitumen	68.19	69.75	65 - 75
6	Density, g/cc	2.25	2.24	--

Note:

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 28.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company,** Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	28.03.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.30	10.17	9 Kn (min)
2	Marshal flow, mm	3.73	3.56	2 – 4
3	Percent air voids in Mineral Aggregate	13.84	14.40	13 – 15
4	Voids in Compacted Mix	3.89	4.31	3 – 6
5	Percent Voids filled with Bitumen	68.96	69.62	65 - 75
6	Density, g/cc	2.25	2.23	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 28.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company**, Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	28.03.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.43	9.47	9 Kn (min)
2	Marshal flow, mm	3.69	3.05	2 – 4
3	Percent air voids in Mineral Aggregate	14.61	13.20	13 – 15
4	Voids in Compacted Mix	4.63	3.99	3 – 6
5	Percent Voids filled with Bitumen	71.16	69.12	65 - 75
6	Density, g/cc	2.26	2.22	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 28.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: M.S.V. Constructions Company, Contractor, Bangalore.
Name of the Work	: Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Date of Testing	28.03.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	476.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.50	23.00
7. Bitumen content in %	4.70	4.60
8. Average	4.65	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	33.9	33.9	7.1	92.9	90 - 100
19	74.9	108.8	22.8	77.2	71 - 95
13.2	65.1	173.9	36.5	63.5	56 - 80
4.75	84.3	258.2	54.2	45.8	38 - 54
2.360	76.5	334.7	70.2	29.8	28 - 42
0.300	96.1	430.8	90.4	9.6	7 - 21
0.075	21.1	451.9	94.8	5.2	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.8	36.8	7.7	92.3	90 - 100
19	73.2	110	23.1	76.9	71 - 95
13.2	66.9	176.9	37.1	62.9	56 - 80
4.75	83.50	260.4	54.6	45.4	38 - 54
2.360	78.9	339.3	71.1	28.9	28 - 42
0.300	98.9	438.2	91.9	8.1	7 - 21
0.075	22.3	460.5	96.5	3.5	2 - 8

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 28.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: M.S.V. Constructions Company, Contractor, Bangalore.
Name of the Work	: Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Date of Testing	28.03.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	22.50
7. Bitumen content in %	4.50	4.50
8. Average	4.50	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	34.4	34.4	7.2	92.8	90 - 100
19	73.9	108.3	22.7	77.3	71 - 95
13.2	66	174.3	36.5	63.5	56 - 80
4.75	84	258.3	54.1	45.9	38 - 54
2.360	76	334.3	70.0	30.0	28 - 42
0.300	96.8	431.1	90.3	9.7	7 - 21
0.075	21.6	452.7	94.8	5.2	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	32.8	32.8	6.9	93.1	90 - 100
19	71.8	104.6	21.9	78.1	71 - 95
13.2	66.8	171.4	35.9	64.1	56 - 80
4.75	84.50	255.9	53.6	46.4	38 - 54
2.360	78.6	334.5	70.1	29.9	28 - 42
0.300	98.5	433	90.7	9.3	7 - 21
0.075	23.4	456.4	95.6	4.4	2 - 8

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 28.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

Client	: Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: M.S.V. Constructions Company, Contractor, Bangalore.
Name of the Work	: Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Date of Testing	28.03.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	23.00
7. Bitumen content in %	4.50	4.60
8. Average	4.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.3	36.3	7.6	92.4	90 - 100
19	71.5	107.8	22.6	77.4	71 - 95
13.2	64.8	172.6	36.1	63.9	56 - 80
4.75	84.3	256.9	53.8	46.2	38 - 54
2.360	75.8	332.7	69.7	30.3	28 - 42
0.300	91.9	424.6	88.9	11.1	7 - 21
0.075	25.3	449.9	94.2	5.8	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	33.7	33.7	7.1	92.9	90 - 100
19	72.6	106.3	22.3	77.7	71 - 95
13.2	67.8	174.1	36.5	63.5	56 - 80
4.75	88.70	262.8	55.1	44.9	38 - 54
2.360	77.6	340.4	71.4	28.6	28 - 42
0.300	93.5	433.9	91.0	9.0	7 - 21
0.075	20.9	454.8	95.3	4.7	2 - 8

Note:

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 26.03.2022

Aggregate Impact Value

Client	**: Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: M.S.V. Constructions Company, Contractor, Bangalore.**
Name of the Work	: Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
BIS Code	IS 2386(Part 4):1963
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	26.03.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84.5	85.5	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300.5	298.5	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	21.95	22.27	**22.11**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

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Authorised Signatory

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 26.03.2022

Aggregate Gradation Test

IS : 2386 Part I

Client	: Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: M.S.V. Constructions Company, Contractor, Bangalore.
Name of the Work	: Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	26.03.2022

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	409	8.18	8.18	91.82	90 - 100	
9.5	472	9.44	17.62	82.38	70 - 88	
4.75	641	12.82	30.44	69.56	53 - 71	
2.36	682	13.64	44.08	55.92	42 - 58	
1.18	519	10.38	54.46	45.54	34 - 48	
0.600	542	10.84	65.30	34.70	26 - 38	
0.300	485	9.70	75.00	25.00	18 - 28	
0.150	369	7.38	82.38	17.62	12 - 20	
0.075	481	9.62	92.00	8.00	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	441	8.82	8.82	91.18	90 - 100	
9.5	549	10.98	19.80	80.20	70 - 88	
4.75	682	13.64	33.44	66.56	53 - 71	
2.36	533	10.66	44.10	55.90	42 - 58	
1.18	559	11.18	55.28	44.72	34 - 48	
0.600	546	10.92	66.20	33.80	26 - 38	
0.300	682	13.64	79.84	20.16	18 - 28	
0.150	198	3.96	83.80	16.20	12 - 20	
0.075	482	9.64	93.44	6.56	4 - 10	

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 26.03.2022

TEST REPORT

Client	:	**Assistant Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company**, Contractor, Bangalore.
Name of the work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	26.03.2022

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	56	Min 45
2	Softening point, ^{0}C	54	Min. 47
3	Ductility at 27^{0}C, cm	> 115	Min. 40
4	Flash Point, ^{0}C	268	Min. 220

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 26.03.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**: Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: M.S.V. Constructions Company, Contractor, Bangalore.**
Name of Work	: Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Bituminous Concrete
Date of Testing	26.03.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	12.8	12.5	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	13.2	13.1	
	Combined Flakiness & Elongation index	26.00	25.60	

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 28.03.2022

Specific Gravity And Water Absorption Test

Client	**: Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: M.S.V. Constructions Company, Contractor, Bangalore.**
Name of the Work	: Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
BIS Code	IS 2386(Part 3):1963
Type of Mix	Bituminous Concrete
Date of Testing	26.03.2022 to 28.03.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2022	2023	2026	
2	Weight of basket suspended in water	W_2 g	753	755	756	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1269	1268	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2016	2018	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	747	750	750	
6	Weight of oven dried aggregate	W_4 g	2010	2011	2012	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.691	2.681	2.683	2.685
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.713	2.707	2.712	2.710
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.30%	0.35%	0.40%	0.35%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%(MORTH table 500.16)

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 29.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company**, Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	29.03.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.23	9.54	9 Kn (min)
2	Marshal flow, mm	3.65	2.34	2 – 4
3	Percent air voids in Mineral Aggregate	13.43	14.55	13 – 15
4	Voids in Compacted Mix	3.71	4.5	3 – 6
5	Percent Voids filled with Bitumen	70.4	71..10	65 - 75
6	Density, g/cc	2.23	2.26	--

Note:

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⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Bangalore - 560 073.

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CIVIL AIM CONSULTANTS & ENGINEERS
(Building Geo-Tech & Highway Materials Testing Laboratory)
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NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 29.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company,** Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	29.03.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.55	10.82	9 Kn (min)
2	Marshal flow, mm	2.55	2.56	2 – 4
3	Percent air voids in Mineral Aggregate	13.44	14.25	13 – 15
4	Voids in Compacted Mix	3.89	4.51	3 – 6
5	Percent Voids filled with Bitumen	69.33	69.88	65 - 75
6	Density, g/cc	2.21	2.23	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 29.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company,** Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	29.03.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.65	9.85	9 Kn (min)
2	Marshal flow, mm	3.33	2.54	2 – 4
3	Percent air voids in Mineral Aggregate	13.65	14.25	13 – 15
4	Voids in Compacted Mix	3.87	4.61	3 – 6
5	Percent Voids filled with Bitumen	70.21	71.51	65 - 75
6	Density, g/cc	2.25	2.26	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 30.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company**, Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	30.03.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.48	9.95	9 Kn (min)
2	Marshal flow, mm	3.12	2.97	2 – 4
3	Percent air voids in Mineral Aggregate	13.22	14.35	13 – 15
4	Voids in Compacted Mix	3.63	4.66	3 – 6
5	Percent Voids filled with Bitumen	69.29	68.25	65 - 75
6	Density, g/cc	2.25	2.25	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 30.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company,** Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	30.03.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.67	9.54	9 Kn (min)
2	Marshal flow, mm	3.46	2.58	2 – 4
3	Percent air voids in Mineral Aggregate	13.78	14.45	13 – 15
4	Voids in Compacted Mix	3.12	4.52	3 – 6
5	Percent Voids filled with Bitumen	70.25	71.61	65 - 75
6	Density, g/cc	2.21	2.23	--

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 30.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company,** Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	30.03.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.75	10.15	9 Kn (min)
2	Marshal flow, mm	3.25	3.5	2 – 4
3	Percent air voids in Mineral Aggregate	14.1	14.25	13 – 15
4	Voids in Compacted Mix	4.1	4.12	3 – 6
5	Percent Voids filled with Bitumen	67.29	69.12	65 - 75
6	Density, g/cc	2.21	2.24	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 31.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company**, Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	31.03.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.25	9.58	9 Kn (min)
2	Marshal flow, mm	3.67	2.45	2 – 4
3	Percent air voids in Mineral Aggregate	13.46	14.52	13 – 15
4	Voids in Compacted Mix	3.78	4.61	3 – 6
5	Percent Voids filled with Bitumen	70.12	71.15	65 - 75
6	Density, g/cc	2.25	2.26	--

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date: 31.03.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**M.S.V. Constructions Company**, Contractor, Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	31.03.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.44	10.82	9 Kn (min)
2	Marshal flow, mm	2.69	2.65	2 – 4
3	Percent air voids in Mineral Aggregate	13.45	14.52	13 – 15
4	Voids in Compacted Mix	3.84	4.15	3 – 6
5	Percent Voids filled with Bitumen	69.29	70.12	65 - 75
6	Density, g/cc	2.25	2.26	--

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 29.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M.S.V. Constructions Company, Contractor, Bangalore.
NAME OF THE WORK	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	29.03.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	473	473
3. Weight of Asphalt and Mineral matter Extracted, g	27	27
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27	27
7. Bitumen content in %	5.40	5.40
8. Average	5.40	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	16.9	16.9	3.6	96.4	90 - 100
9.5	65.8	82.7	17.5	82.5	70 - 88
4.75	90.3	173	36.6	63.4	53 - 71
2.36	46.2	219.2	46.3	53.7	42 - 58
1.18	35.8	255	53.9	46.1	34 - 48
0.600	55.3	310.3	65.6	34.4	26 - 38
0.300	42.8	353.1	74.7	25.3	18 - 28
0.150	34.9	388	82.0	18.0	12 - 20
0.075	42.8	430.8	91.1	8.9	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	18.7	18.7	4.0	96.0	90 - 100
9.5	66.2	84.9	17.9	82.1	70 - 88
4.75	92.8	177.7	37.6	62.4	53 - 71
2.36	45.3	223	47.1	52.9	42 - 58
1.18	48.2	271.2	57.3	42.7	34 - 48
0.600	56.3	327.5	69.2	30.8	26 - 38
0.300	45.8	373.3	78.9	21.1	18 - 28
0.150	37.9	411.2	86.9	13.1	12 - 20
0.075	32.6	443.8	93.8	6.2	4 - 10

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 29.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M.S.V. Constructions Company, Contractor, Bangalore.
NAME OF THE WORK	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	29.03.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	472
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	28
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	28
7. Bitumen content in %	5.50	5.60
8. Average	5.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	13.7	13.7	2.9	97.1	90 - 100
9.5	68.9	82.6	17.5	82.5	70 - 88
4.75	92.6	175.2	37.1	62.9	53 - 71
2.36	42.5	217.7	46.1	53.9	42 - 58
1.18	36.8	254.5	53.9	46.1	34 - 48
0.600	50.9	305.4	64.6	35.4	26 - 38
0.300	46.3	351.7	74.4	25.6	18 - 28
0.150	35.8	387.5	82.0	18.0	12 - 20
0.075	46.9	434.4	91.9	8.1	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	15.3	15.3	3.2	96.8	90 - 100
9.5	62.8	78.1	16.5	83.5	70 - 88
4.75	90.9	169	35.8	64.2	53 - 71
2.36	46.5	215.5	45.7	54.3	42 - 58
1.18	43.8	259.3	54.9	45.1	34 - 48
0.600	52.4	311.7	66.0	34.0	26 - 38
0.300	49.3	361	76.5	23.5	18 - 28
0.150	35.6	396.6	84.0	16.0	12 - 20
0.075	40.8	437.4	92.7	7.3	4 - 10

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 29.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M.S.V. Constructions Company, Contractor, Bangalore.
NAME OF THE WORK	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	29.03.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472	473
3. Weight of Asphalt and Mineral matter Extracted, g	28	27
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	28	27
7. Bitumen content in %	5.60	5.40
8. Average	5.50	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	13.9	13.9	2.9	97.1	90 - 100
9.5	65.6	79.5	16.8	83.2	70 - 88
4.75	90.5	170	36.0	64.0	53 - 71
2.36	46.5	216.5	45.9	54.1	42 - 58
1.18	36	252.5	53.5	46.5	34 - 48
0.600	55.9	308.4	65.3	34.7	26 - 38
0.300	43	351.4	74.4	25.6	18 - 28
0.150	35.1	386.5	81.9	18.1	12 - 20
0.075	43.1	429.6	91.0	9.0	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	15.1	15.1	3.2	96.8	90 - 100
9.5	66	81.1	17.1	82.9	70 - 88
4.75	92.6	173.7	36.7	63.3	53 - 71
2.36	45.1	218.8	46.3	53.7	42 - 58
1.18	48.1	266.9	56.4	43.6	34 - 48
0.600	56.1	323	68.3	31.7	26 - 38
0.300	45.6	368.6	77.9	22.1	18 - 28
0.150	38.5	407.1	86.1	13.9	12 - 20
0.075	31.6	438.7	92.7	7.3	4 - 10

For CIVIL AIM CONSULTANTS & ENGINEERS

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- ...and on the tests carried out on the samples collected at the site.
- ...from the date of testing

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 29.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M.S.V. Constructions Company, Contractor, Bangalore.
NAME OF THE WORK	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	29.03.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472	472
3. Weight of Asphalt and Mineral matter Extracted, g	28	28
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	28	28
7. Bitumen content in %	5.60	5.60
8. Average	5.60	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	14.4	14.4	3.1	96.9	90 - 100
9.5	69.1	83.5	17.7	82.3	70 - 88
4.75	92.1	175.6	37.2	62.8	53 - 71
2.36	42.2	217.8	46.1	53.9	42 - 58
1.18	37	254.8	54.0	46.0	34 - 48
0.600	51.1	305.9	64.8	35.2	26 - 38
0.300	46.5	352.4	74.7	25.3	18 - 28
0.150	35.1	387.5	82.1	17.9	12 - 20
0.075	47.1	434.6	92.1	7.9	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	15.8	15.8	3.3	96.7	90 - 100
9.5	62.5	78.3	16.6	83.4	70 - 88
4.75	91.1	169.4	35.9	64.1	53 - 71
2.36	46.7	216.1	45.8	54.2	42 - 58
1.18	43.5	259.6	55.0	45.0	34 - 48
0.600	52.1	311.7	66.0	34.0	26 - 38
0.300	49.1	360.8	76.4	23.6	18 - 28
0.150	35.2	396	83.9	16.1	12 - 20
0.075	40.5	436.5	92.5	7.5	4 - 10

For CIVIL AIM CONSULTANTS & ENGINEERS

Refused

Note:

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- This test report is based on the tests carried out on the samples collected at the site.
- Subject to Bangalore jurisdiction only. Valid for 90 days from the date of testing

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CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 29.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M.S.V. Constructions Company, Contractor, Bangalore.
NAME OF THE WORK	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	29.03.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	473
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	27
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	27
7. Bitumen content in %	5.50	5.40
8. Average	5.45	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	14.2	14.2	3.0	97.0	90 - 100
9.5	66.2	80.4	17.0	83.0	70 - 88
4.75	91.3	171.7	36.3	63.7	53 - 71
2.36	45.9	217.6	46.1	53.9	42 - 58
1.18	36.1	253.7	53.7	46.3	34 - 48
0.600	55.9	309.6	65.5	34.5	26 - 38
0.300	43.1	352.7	74.6	25.4	18 - 28
0.150	35.1	387.8	82.1	17.9	12 - 20
0.075	41.5	429.3	90.9	9.1	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	14.5	14.5	3.1	96.9	90 - 100
9.5	65.9	80.4	17.0	83.0	70 - 88
4.75	92.5	172.9	36.6	63.4	[illegible]
2.36	45.9	218.8	46.3	53.7	42 - 58
1.18	48.9	267.7	56.6	43.4	34 - 48
0.600	56.9	324.6	68.6	31.4	26 - 38
0.300	47.1	371.7	78.6	21.4	18 - 28
0.150	38.1	409.8	86.6	13.4	12 - 20
0.075	31.5	441.3	93.3	6.7	4 - 10

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For CIVIL AIM CONSULTANTS & ENGINEERS

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 29.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M.S.V. Constructions Company, Contractor, Bangalore.
NAME OF THE WORK	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	29.03.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	472.5
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	27.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	27.5
7. Bitumen content in %	5.50	5.50
8. Average	5.50	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	14.8	14.8	3.1	96.9	90 - 100
9.5	69.1	83.9	17.8	82.2	70 - 88
4.75	92.2	176.1	37.3	62.7	53 - 71
2.36	42.2	218.3	46.2	53.8	42 - 58
1.18	36.6	254.9	53.9	46.1	34 - 48
0.600	50	304.9	64.5	35.5	26 - 38
0.300	46.6	351.5	74.4	25.6	18 - 28
0.150	35.5	387	81.9	18.1	12 - 20
0.075	46.5	433.5	91.7	8.3	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	14.4	14.4	3.0	97.0	90 - 100
9.5	62.2	76.6	16.2	83.8	70 - 88
4.75	89.9	166.5	35.2	64.8	53 - 71
2.36	46.5	213	45.1	54.9	42 - 58
1.18	43.5	256.5	54.3	45.7	34 - 48
0.600	52.2	308.7	65.3	34.7	26 - 38
0.300	49.9	358.6	75.9	24.1	18 - 28
0.150	35.5	394.1	83.4	16.6	12 - 20
0.075	40.2	434.3	91.9	8.1	4 - 10

For CIVIL AIM CONSULTANTS & ENGINE

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 30.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M.S.V. Constructions Company, Contractor, Bangalore.
NAME OF THE WORK	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	30.03.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472	472.5
3. Weight of Asphalt and Mineral matter Extracted, g	28	27.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	28	27.5
7. Bitumen content in %	5.60	5.50
8. Average	5.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	13.6	13.6	2.9	97.1	90 - 100
9.5	66.6	80.2	17.0	83.0	70 - 88
4.75	92.2	172.4	36.5	63.5	53 - 71
2.36	42.9	215.3	45.6	54.4	42 - 58
1.18	37.5	252.8	53.6	46.4	34 - 48
0.600	51.9	304.7	64.6	35.4	26 - 38
0.300	46.6	351.3	74.4	25.6	18 - 28
0.150	35.5	386.8	81.9	18.1	12 - 20
0.075	46.6	433.4	91.8	8.2	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	14.7	14.7	3.1	96.9	90 - 100
9.5	62.1	76.8	16.3	83.7	70 - 88
4.75	91.9	168.7	35.7	64.3	53 - 71
2.36	46	214.7	45.4	54.6	42 - 58
1.18	43.1	257.8	54.6	45.4	34 - 48
0.600	51.1	308.9	65.4	34.6	26 - 38
0.300	48.1	357	75.6	24.4	18 - 28
0.150	34.6	391.6	82.9	17.1	12 - 20
0.075	41.8	433.4	91.7	8.3	4 - 10

For CIVIL AIM CONSULTANTS & ENGI

Authorised Signatory

Note:
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- The results indicated above are based on the tests carried out on the samples collected at the site.
- [illegible] on the date of testing

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
[illegible] Bangalore - 560 073.

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CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/MSV/W.No.14/2021-22 Date : 30.03.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	M.S.V. Constructions Company, Contractor, Bangalore.
NAME OF THE WORK	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross, 5th B, 17th cross and other cross road at MEI layout and 8th B, 9th cross, 5th,18th Main and Other cross roads and Re-Construction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub-division Package No-DZ 2017-18 (2)(4 Works)
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	30.03.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	472
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	28
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	28
7. Bitumen content in %	5.50	5.60
8. Average	5.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	18.1	18.1	3.8	96.2	90 - 100
9.5	69.3	87.4	18.5	81.5	70 - 88
4.75	93.9	181.3	38.4	61.6	53 - 71
2.36	43.5	224.8	47.6	52.4	42 - 58
1.18	38.2	263	55.7	44.3	34 - 48
0.600	39.2	302.2	64.0	36.0	26 - 38
0.300	46.3	348.5	73.8	26.2	18 - 28
0.150	36.2	384.7	81.4	18.6	12 - 20
0.075	46.9	431.6	91.3	8.7	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	17.7	17.7	3.8	96.3	90 - 100
9.5	61.8	79.5	16.8	83.2	70 - 88
4.75	91.1	170.6	36.1	63.9	53 - 71
2.36	46.3	216.9	46.0	54.0	42 - 58
1.18	43.1	260	55.1	44.9	34 - 48
0.600	52.1	312.1	66.1	33.9	26 - 38
0.300	49.8	361.9	76.7	23.3	18 - 28
0.150	35.8	397.7	84.3	15.7	12 - 20
0.075	40.2	437.9	92.8	7.2	4 - 10

For CIVIL AIM CONSULTANTS & ENG

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...mples collected at the site.